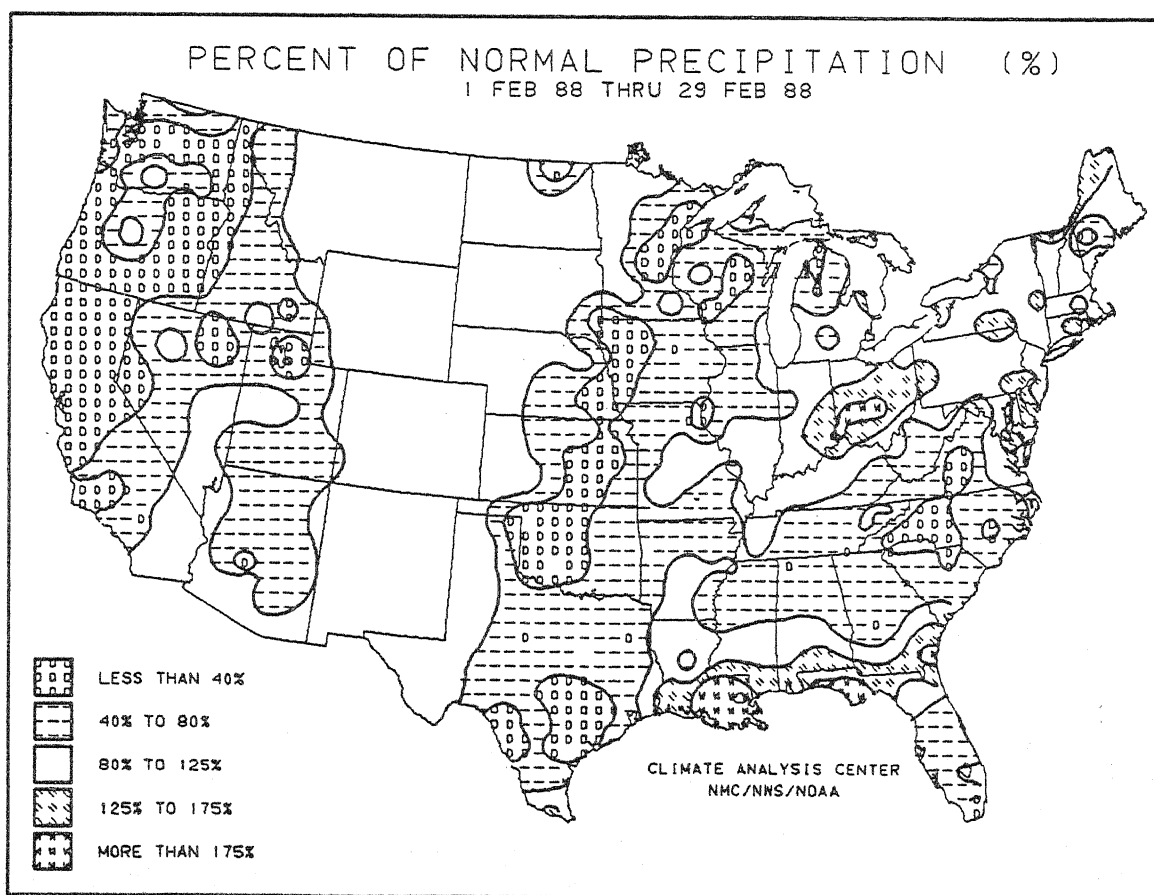


WEEKLY CLIMATE BULLETIN

No. 88/10

Washington, DC

March 5, 1988



UNUSUALLY DRY CONDITIONS PREVAILED ACROSS MUCH OF THE COUNTRY IN FEBRUARY AS LESS THAN HALF OF THE NORMAL MONTHLY PRECIPITATION FELL IN PARTS OF THE WEST, THE CENTRAL AND SOUTHERN GREAT PLAINS, THE UPPER MIDWEST, AND THE SOUTHEAST

NOAA - NATIONAL WEATHER SERVICE - NATIONAL METEOROLOGICAL CENTER

WEEKLY CLIMATE BULLETIN

Editor: David Miskus
Associate Editor: Paul Sabol
Contributors: James A. Fleming
Keith W. Johnson
Graphics: Robert H. Churchill
John P. Dee
Typing: Ann C. Kellar

This Bulletin is issued weekly by the Climate Analysis Center and is designed to indicate, in a brief, concise format, current surface climatic conditions in the United States and around the world. The Bulletin contains:

- Highlights of major global climatic events and anomalies.
- U.S. climatic conditions for the previous week.
- U.S. apparent temperatures (summer) or wind chill (winter).
- Global two-week temperature anomalies.
- Global four-week precipitation anomalies.
- Global monthly temperature and precipitation anomalies.
- Global three-month precipitation anomalies (once a month).
- Global twelve-month precipitation anomalies (every 3 months).
- Global temperature anomalies for winter and summer seasons.
- Special climate summaries, explanations, etc. (as appropriate).

Most analyses contained in this Bulletin are based on preliminary, unchecked data received at the Center via the Global Telecommunication System. Similar analyses based on final, checked data are likely to differ to some extent from those presented here.

To receive copies of the Bulletin or change mailing address, write to:

Climate Analysis Center, W/NMC53
Attention: Weekly Climate Bulletin
NOAA, National Weather Service
Washington, DC 20233
Phone: (301)-763-8071

GLOBAL HIGHLIGHTS

MAJOR CLIMATIC EVENTS AND ANOMALIES AS OF MARCH 5, 1988
(Approximate duration of anomalies is in brackets.)

1. WESTERN UNITED STATES AND SOUTHWESTERN CANADA: UNUSUAL DRYNESS PERSISTS.

Relatively light precipitation occurred at most stations in the western United States and adjacent parts of Canada last week; however, heavier amounts occurred at some coastal and mountain stations [7 weeks].

2. NORTHERN EUROPE: UNUSUALLY WET CONDITIONS CONTINUE.

Moderate precipitation, as much as 53 mm (2.09 inches), occurred in southern Scandinavia and parts of East Germany and Poland last week [7 weeks].

3. ZIMBABWE, BOTSWANA, AND NORTHERN SOUTH AFRICA: AREA RECEIVES MORE HEAVY RAIN.

Unusually heavy precipitation fell again last week with some stations reporting up to 153.5 mm (6.12 inches) of rain [3 weeks].

4. BRAZIL: RIO DE JANEIRO AREA REMAINS WET.

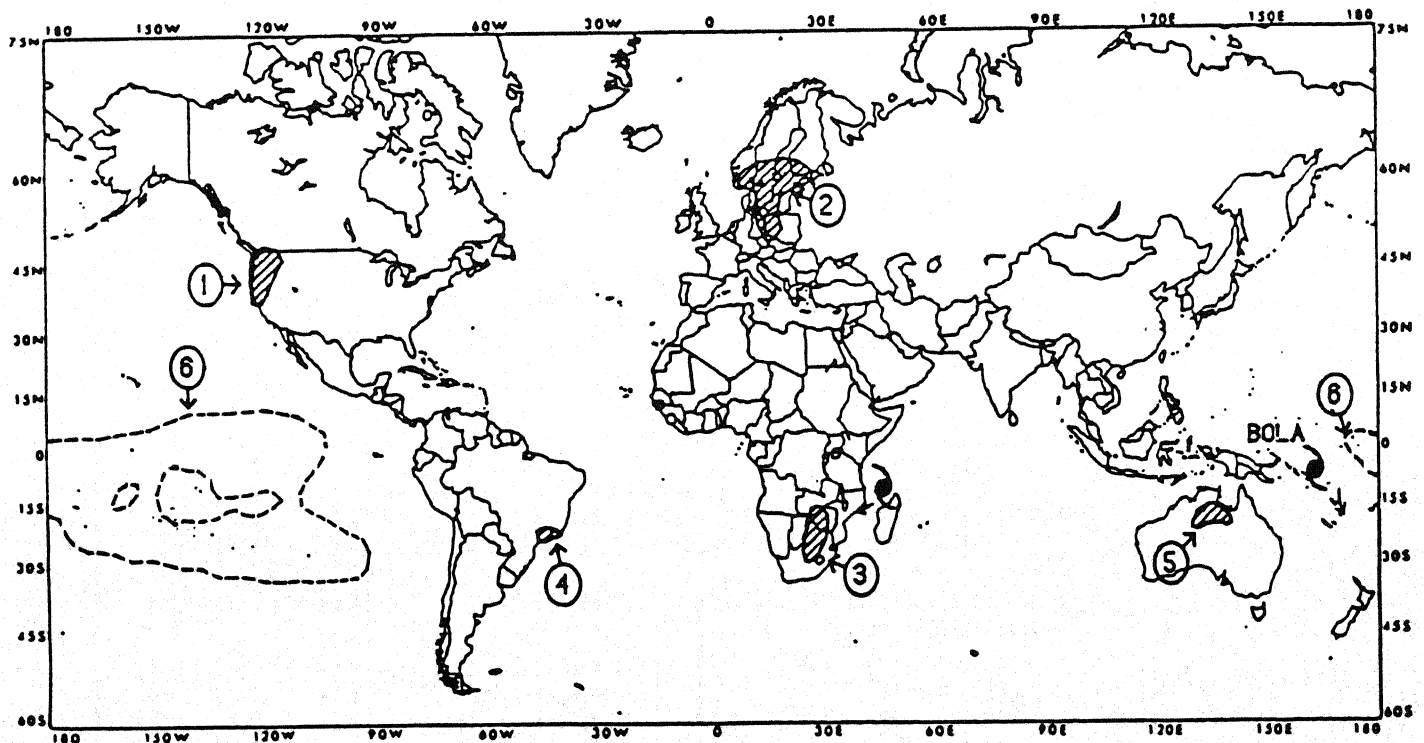
Heavy precipitation, up to 136.7 mm (5.38 inches), fell in the vicinity of Rio de Janeiro as unusually wet conditions persisted [4 weeks].

5. NORTH CENTRAL AUSTRALIA: WARM, DRY CONDITIONS DEVELOP.

Little or no precipitation, generally less than 25 mm (0.98 inch), occurred in the interior of north central Australia. The dryness was aggravated by unusually hot conditions with temperatures up to 4.5°C (8.1°F) above normal [5 weeks].

6. CENTRAL AND EASTERN TROPICAL PACIFIC: REFER TO JANUARY 1988 ON EL NINO/SOUTHERN OSCILLATION (ENSO) ADVISORY.

The sea surface temperatures remained 1°C (1.8°F) to 2°C (3.6°F) above normal through January. The area above 1°C (1.8°F) is outlined for January 1988. The February 1988 ENSO Summary will appear in the middle of March.



Approximate locations of the major anomalies and events described above are shown on this map. See the other world maps in this Bulletin for current two-week temperature anomalies, four-week precipitation anomalies, and (occasionally) longer-term anomalies.

U.S. WEEKLY WEATHER HIGHLIGHTS

FOR THE WEEK OF FEBRUARY 28 THROUGH MARCH 5, 1988

In contrast to the previous week, moderate to heavy precipitation was reported in parts of the West, the central Great Plains, and the Southeast. According to the River Forecast Center, heavy rains (with maximum values) fell in the northern Sierra Nevada Mountains (4.2 in), near the south-central California coast (3.6 in), along the coasts of Washington and Oregon (4.2 in), and in the northern Cascades (3.9 in). Further east, torrential thunderstorms dropped between two to four inches of rain in Oklahoma, southeastern Kansas, southwestern Missouri, and western Arkansas, while portions of the Gulf Coast, from Texas eastward through Florida, received up to 6.1 inches (see Table 1 and Figure 1). Light to moderate amounts were observed along the West Coast, throughout much of the Rockies, in the southern half of the Great Plains, the lower Midwest, the majority of the Southeast, and in the mid-Atlantic and New England regions. Little or no precipitation was prevalent in the desert Southwest and adjacent parts of the Great Basin, southwestern Texas, the northern half of the Great Plains, the upper Midwest and Great Lakes region, southern Florida, and the western Carolinas and southern Virginia.

Much of the nation experienced spring-like conditions as temperatures averaged above normal west of the Mississippi and in the upper Midwest, the Southeast, the mid-Atlantic, and Alaska (see Table 2). Largest departures in the contiguous U.S. were located in Montana and North Dakota as values were 12-15°F above normal. The approximate coverage of the warm weather during Feb. 28 - Mar. 5 is depicted in Figure 2. The northern limit of the 60°F extreme maximum temperature isotherm reached into British Columbia, Montana, North Dakota, and Pennsylvania, while further south, highest temperatures topped 80°F throughout Texas and parts of Oklahoma and New Mexico. Slightly below normal temperatures were limited to northern Texas and western Oklahoma, portions of Florida, and from the Missouri bootheel northeastward through Maine.

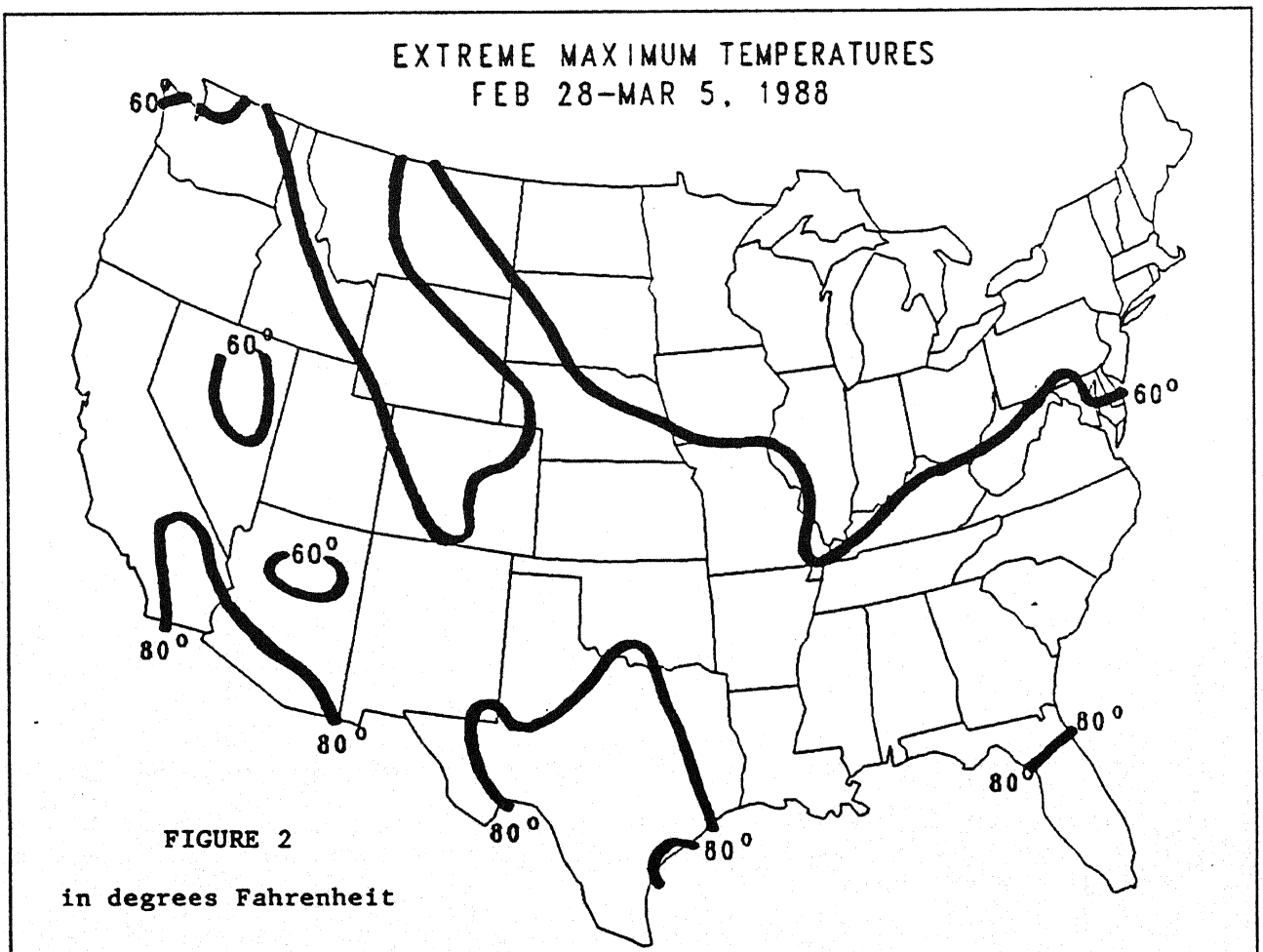
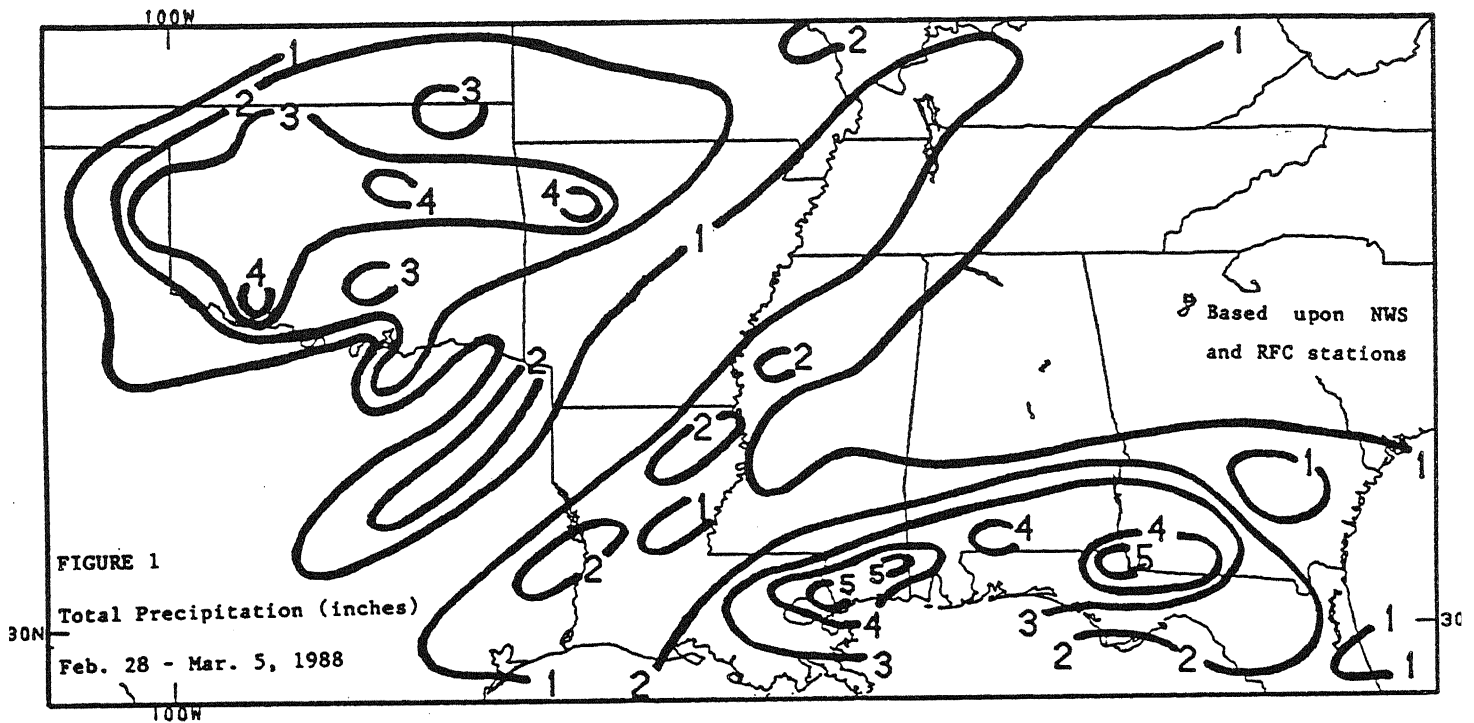
TABLE 1. Selected cities with three or more inches of precipitation for the week.

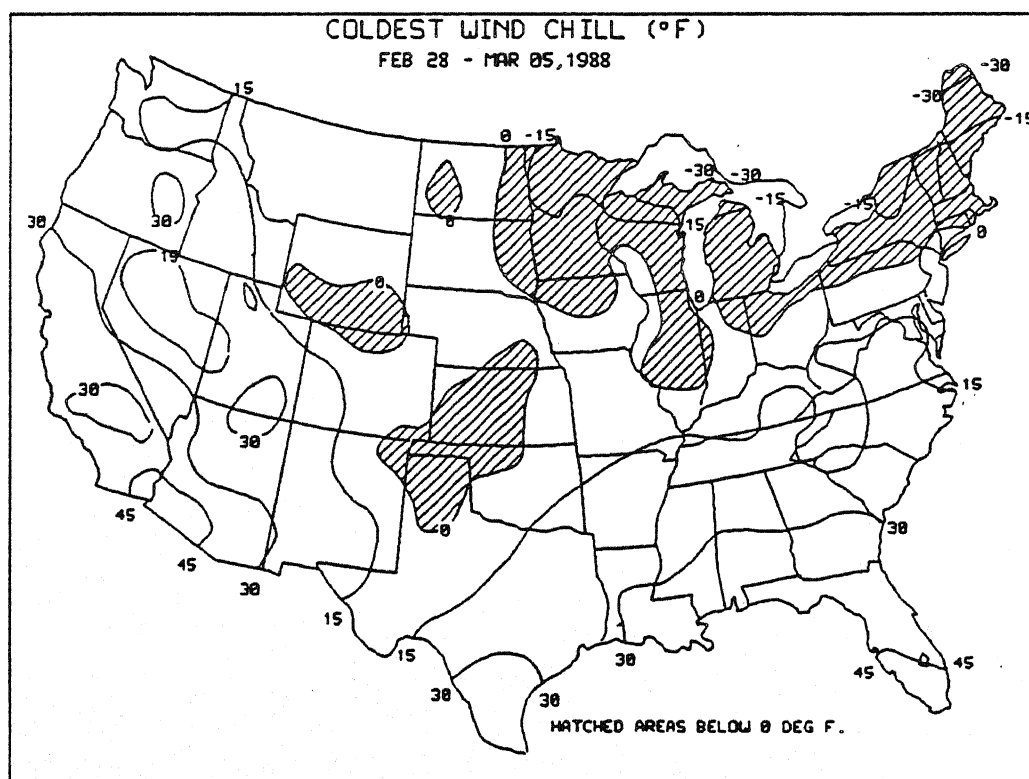
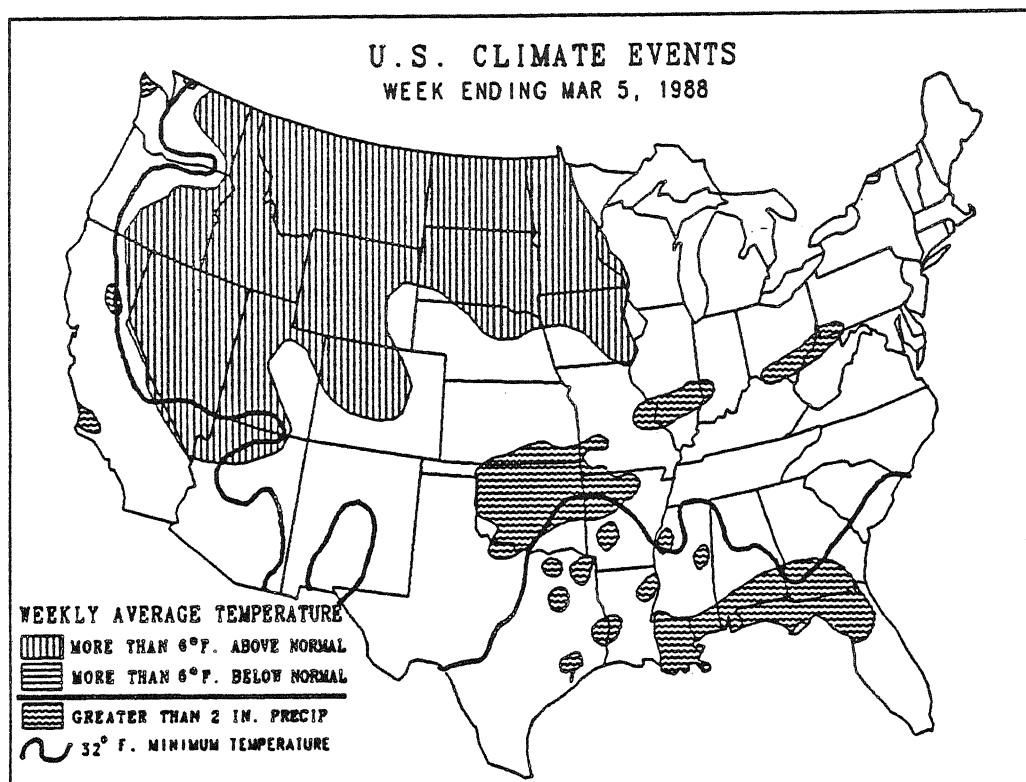
Tallahassee, FL	5.57	Tulsa, OK	3.33
Wichita Falls, TX	4.31	Fort Smith, AR	3.18
Biloxi/Keesler AFB, MS	4.18	Valparaiso, FL	3.15
New Orleans, LA (NEW)	3.71	Oklahoma City, OK	3.03
Mobile, AL	3.52	Quillayute, WA	3.01
New Orleans NAS, LA (NBG)	3.52	Pensacola, FL	3.00
New Orleans, LA (MSY)	3.48		

TABLE 2. Selected cities with temperatures averaging higher than 13°F above normal for the week.

Big Delta, AK	+25	Iliamna, AK	+15
Fairbanks, AK	+24	Kenai, AK	+15
Barter Island, AK	+23	Minot, ND	+15
Bettles, AK	+21	Glasgow, MT	+14
McGrath, AK	+20	Dickinson, ND	+14
Unalakleet, AK	+20	Lewiston, MT	+14
Aniak, AK	+17	Jamestown, ND	+14
Kotzebue, AK	+17	Bozeman, MT	+14
Gulkana, AK	+16	Devil's Lake, ND	+14
Williston, ND	+15		

U.S. WEEKLY WEATHER HIGHLIGHTS

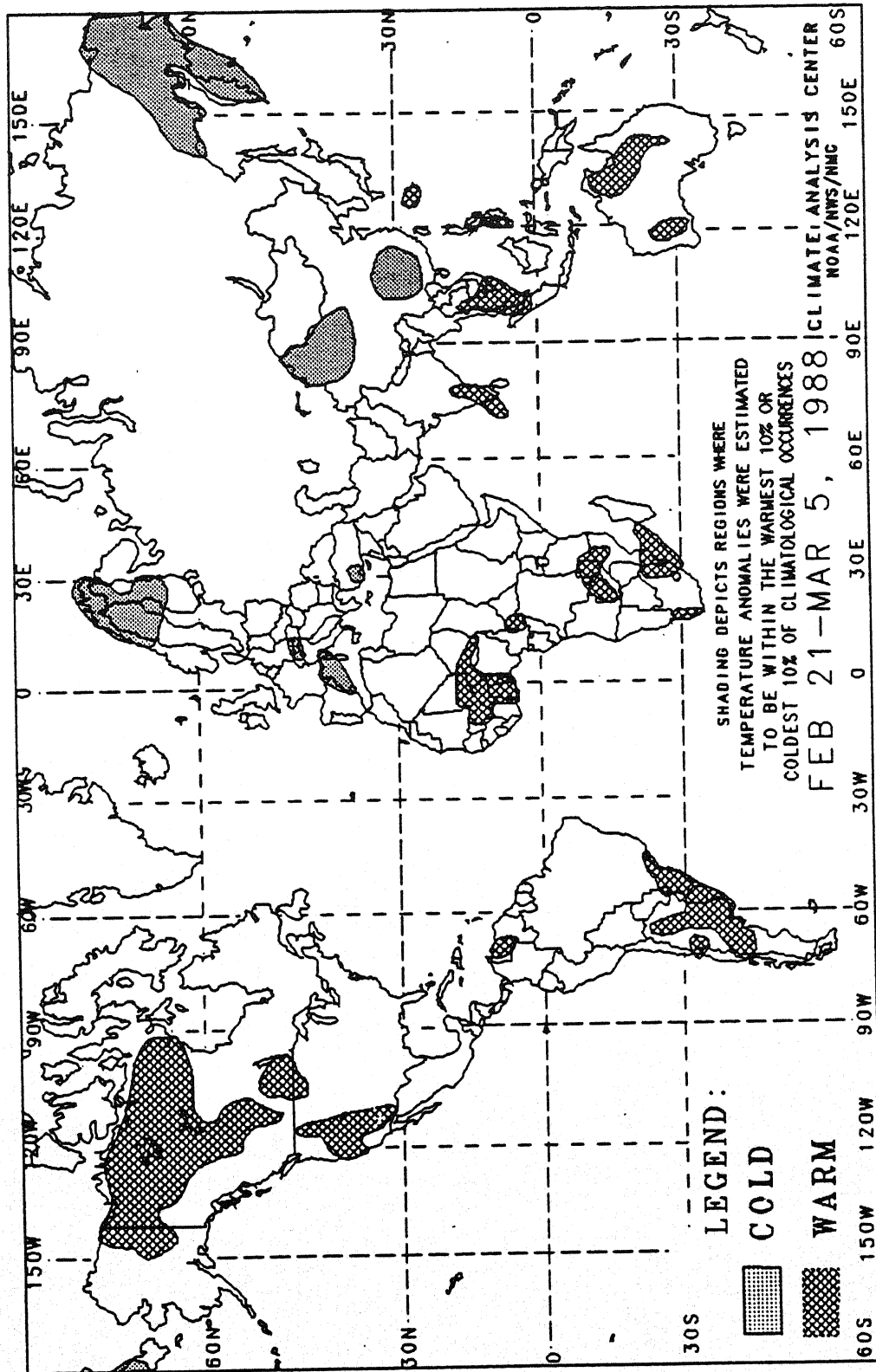




Temperatures warmed considerably last week as early spring conditions prevailed. Wind chills below -30°F were limited to extreme eastern Upper Michigan and northern Maine.

GLOBAL TEMPERATURE ANOMALIES

2 Week



The anomalies on this chart are based on approximately 2500 observing stations for which at least 13 days of temperature observations were received from synoptic reports. Many stations do not operate on a twenty-four hour basis so many night time observations are not taken. As a result of these missing observations the estimated minimum temperature may have a warm bias. This in turn may have resulted in an overestimation of the extent of some warm anomalies.

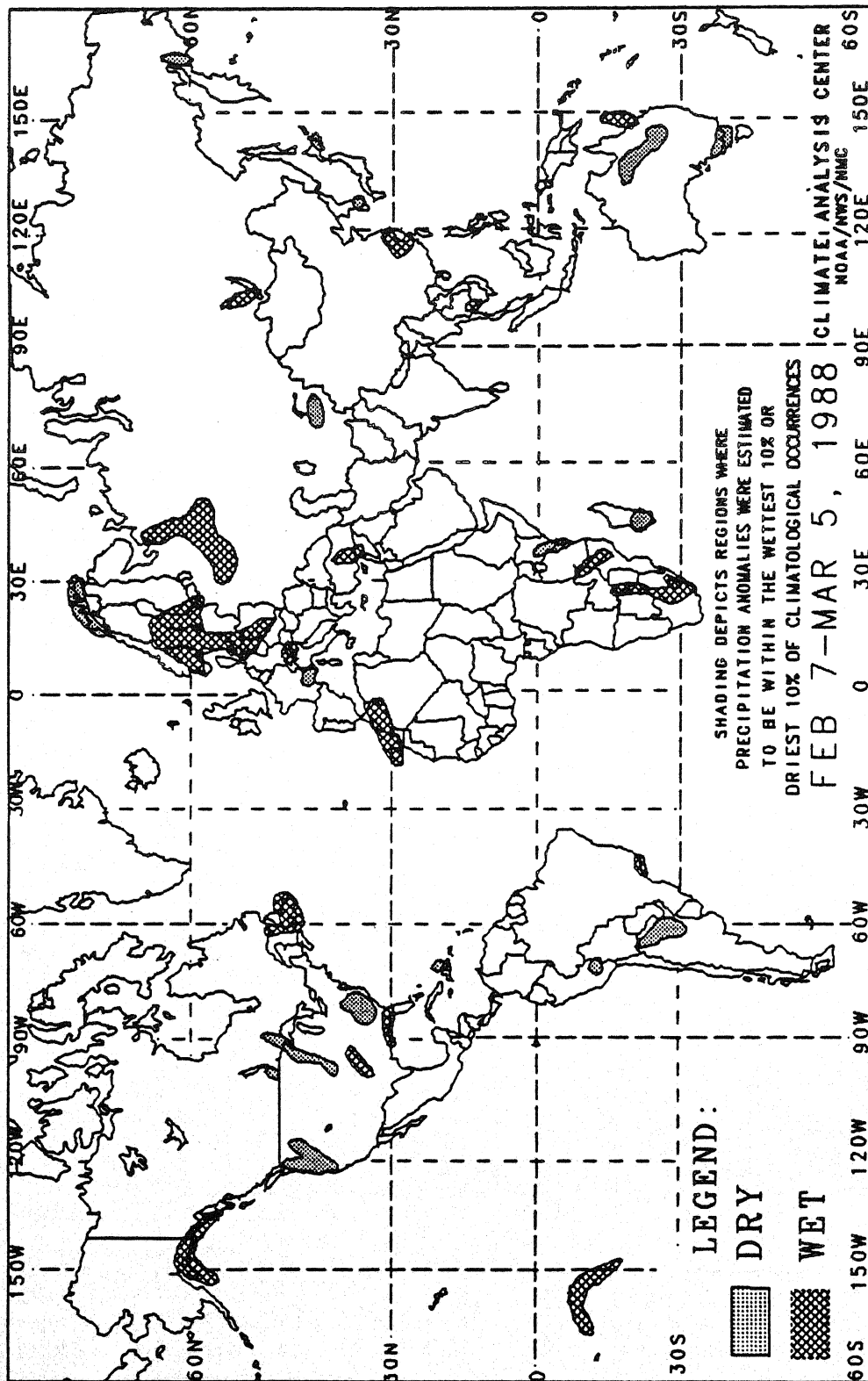
Temperature anomalies are not depicted unless the magnitude of temperature departures from normal exceeds 1.5°C.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data are insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of two week temperature anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

GLOBAL PRECIPITATION ANOMALIES

4 Week



The anomalies on this chart are based on approximately 2500 observing stations for which at least 27 days of precipitation observations (including zero amounts) were received or estimated from synoptic reports. As a result of both missing observations and the use of estimates from synoptic reports (which are conservative), a dry bias in the total precipitation amount may exist for some stations used in this analysis. This in turn may have resulted in an overestimation of the extent of some dry anomalies.

In climatologically arid regions where normal precipitation for the four week period is less than 20 mm, dry anomalies are not depicted. Additionally, wet anomalies for such arid regions are not depicted unless the total four week precipitation exceeds 50 mm.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data are insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of four week precipitation anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

SPECIAL CLIMATE SUMMARY

Climate Analysis Center, NMC
National Weather Service, NOAA

UNITED STATES

CLIMATE SUMMARY FOR THE MONTH OF FEBRUARY 1988

February was characterized by unusually dry weather in the West, Great Plains, upper Midwest, and Southeast, abnormally wet conditions around the Gulf Coast, Delmarva Peninsula, and Ohio River Valley, relatively mild conditions in Alaska and the western third of the nation, and below normal temperatures in the central and southern portions of the United States.

Several cities set minimum precipitation records during February (see Table 4) as dry weather covered much of the country (see front cover and Figure 1). From California to Washington, February is normally one of the wettest months of the year, but the majority of the Pacific Coast measured less than 40% of normal precipitation. Some locations recorded far less, such as Redding, CA, which had only 2.3% (0.14 inches) of their normal rainfall (6.19 inches). Further north in the Pacific Northwest, which suffered from severe drought last year, similar conditions existed as many stations that normally receive four or more inches of February precipitation reported less than half that amount (see Table 2). The monthly actual versus normal cumulative precipitation totals for Salem, OR (see Figure 2) typified most locations in the area. Besides the West, precipitation was deficient in the upper Midwest, especially in Minnesota, throughout the central and southern Great Plains, and in the Southeast, where the Carolina and Virginia Piedmonts observed less than half their normal precipitation. In contrast, inundating rains fell along the Gulf Coast as February amounts, according to the River Forecast Center, totalled up to 6.4 inches in southern Alabama, 7.9 inches in southern Georgia, 9.1 inches in northern Florida, 10.8 inches in southwestern Mississippi, and 17.4 inches in southern Louisiana. Most of the region received a majority of their monthly precipitation during two or three episodes, as shown by a time series plot for Baton Rouge, LA (see Figure 3). Above normal precipitation amounts were also found from central Missouri northeastward to Cape Cod and southward to the Delmarva Peninsula, in extreme southern California, southeastern New Mexico, extreme southern Texas, southeastern Alaska, and in parts of the central Rockies (see Table 1).

During the first half of the month, bitterly cold Arctic air swept across the northern Great Plains and upper Midwest as readings below -10°F were common in the area (see Figure 4). Temperatures gradually moderated, and by month's end, unseasonably mild weather was prevalent (see Figure 7). Overall, temperatures averaged below normal in the Midwest and South, while much of the West, northern Great Plains, and New England observed above normal departures (see Figures 5 and 6, Table 3). Several cities also set record February extreme maximum temperatures (see Table 5). Mild conditions continued in Alaska as departures of $4-8^{\circ}\text{F}$ above normal were widespread in the state, as represented in Figure 8 by the Fairbanks, AK time series plot.

TABLE 1. SELECTED STATIONS THAT WERE UNUSUALLY WET DURING FEBRUARY.
(Total precipitation more than four inches AND percent of normal precipitation more than 150% ; OR, total precipitation more than six inches AND no normals).

<u>Station</u>	<u>Total</u> <u>(in.)</u>	<u>Pct of</u> <u>Normal</u>	<u>Station</u>	<u>Total</u> <u>(in.)</u>	<u>Pct of</u> <u>Normal</u>
Yakutat, AK	16.22	161.1	Valdosta, GA	7.47	***
Baton Rouge, LA	12.49	251.3	Milton, FL	7.11	***
New Orleans, LA (NEW)	11.85	***	Brunswick, GA	6.97	200.2
New Orleans, LA (MSY)	11.30	217.1	Juneau, AK	6.17	165.6
Kodiak, AK	10.80	213.4	Jacksonville, FL	6.08	168.2
Lafayette, LA	8.76	192.4	Lake Charles, LA	5.52	164.4
McComb, MS	8.75	***	Dover AFB, DE	5.41	170.7
Valdez, AK	8.56	162.8	Cincinnati, OH	4.94	182.1
Apalachicola, FL	8.45	232.0	Patuxent River, MD	4.39	154.1
Pensacola, FL	8.04	164.1	Columbus, OH	4.26	197.4
Biloxi/Keesler AFB, MS	7.76	163.7	Zanesville, OH	4.12	172.5
Valparaiso, FL	7.56	179.9	Buffalo, NY	4.07	170.9

(Note: Stations without normals are indicated by asterisks).

TABLE 2. SELECTED STATIONS THAT WERE UNUSUALLY DRY DURING FEBRUARY.
(Normal precipitation more than four inches AND percent of normal precipitation less than 50%).

<u>Station</u>	<u>Total</u> <u>(in.)</u>	<u>% of</u> <u>Nml</u>	<u>Nml Amt</u> <u>(in.)</u>	<u>Station</u>	<u>Total</u> <u>(in.)</u>	<u>% of</u> <u>Nml</u>	<u>Nml Amt</u> <u>(in.)</u>
Redding, CA	0.14	2.3	6.19	Chattanooga, TN	1.87	39.8	4.70
Eureka, CA	0.54	10.4	5.18	Olympia, WA	1.91	33.1	5.77
Seattle-Tacoma, WA	0.71	16.9	4.20	North Bend, OR	1.94	25.4	7.65
Salem, OR	0.75	16.6	4.53	Huntsville, AL	2.18	45.5	4.79
Hickory, NC	0.81	19.2	4.21	Anniston, AL	2.19	45.4	4.82
Macon, GA	1.60	37.7	4.24	Adak, AK	2.44	46.6	5.24
Eugene, OR	1.59	31.2	5.10	Crossville, TN	2.51	49.3	5.09
Muscle Shoals, AL	1.67	38.8	4.30	Astoria, OR	3.60	46.6	7.72

TABLE 3. FEBRUARY AVERAGE TEMPERATURES MORE THAN 5°F ABOVE OR LESS THAN 4°F BELOW NORMAL.

<u>Station</u>	<u>Degrees F</u>		<u>Station</u>	<u>Degrees F</u>	
	<u>Mean</u>	<u>Dep</u>		<u>Mean</u>	<u>Dep</u>
King Salmon, AK	27	+12	Delta, UT	24	-7
Fairbanks, AK	4	+ 8	Kansas City, MO	28	-6
Iliamna, AK	26	+ 8	Alamosa, CO	17	-6
Barter Island, AK	-14	+ 7	Cedar Rapids, IA	19	-6
Kenai, AK	23	+ 7	Duluth, MN	6	-6
Big Delta, AK	10	+ 7	International Falls, MN	2	-6
Phoenix, AZ	*** 62	+ 6	Decatur, IL	25	-6
Tucson, AZ	59	+ 6	Gainesville, FL	53	-6
Talkeetna, AK	21	+ 6	Columbia, MO	28	-5
	28	+ 6	Park Falls, WI	9	-5
	33	+ 6	Champaign/Urbana, IL	25	-5
	28	+ 6	Mason City, IA	14	-5
	1	+ 6	Warroad, MN	2	-5
	--	+ 6			

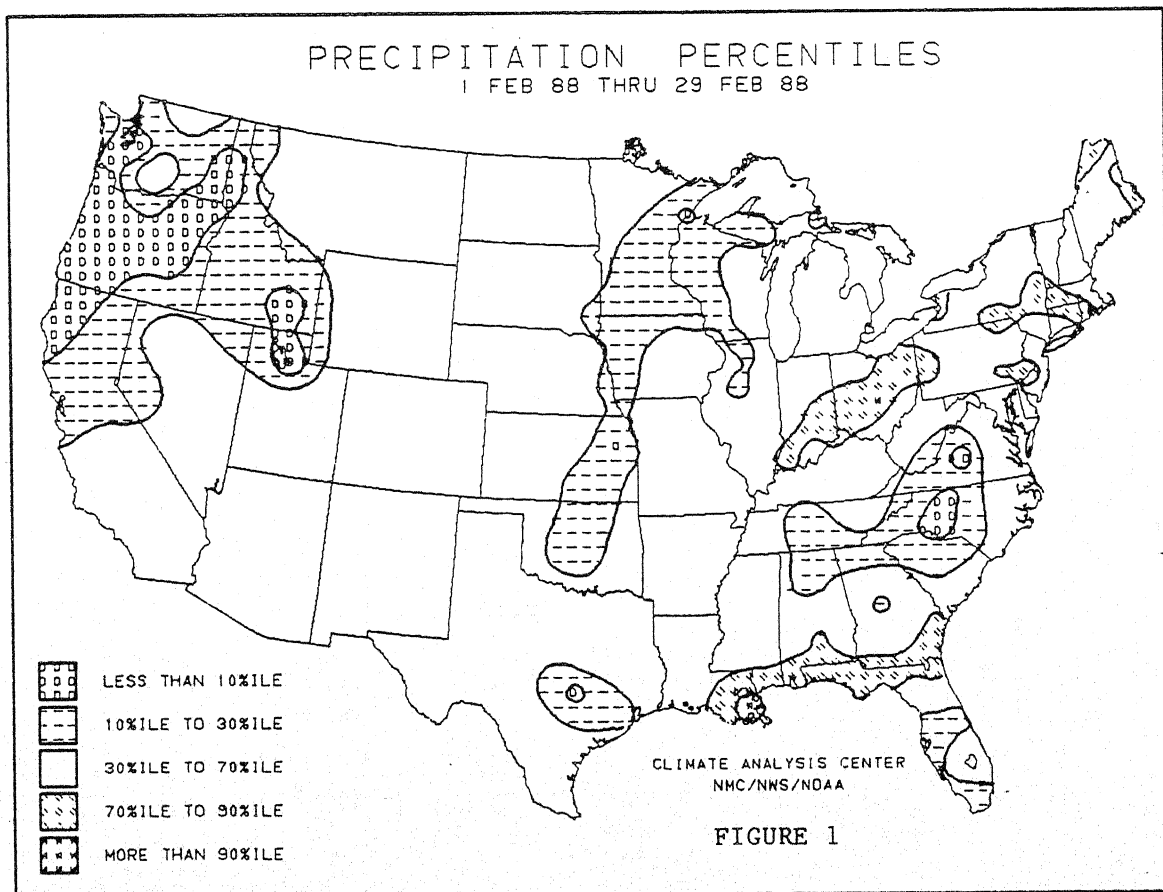
(Record monthly average temperature)

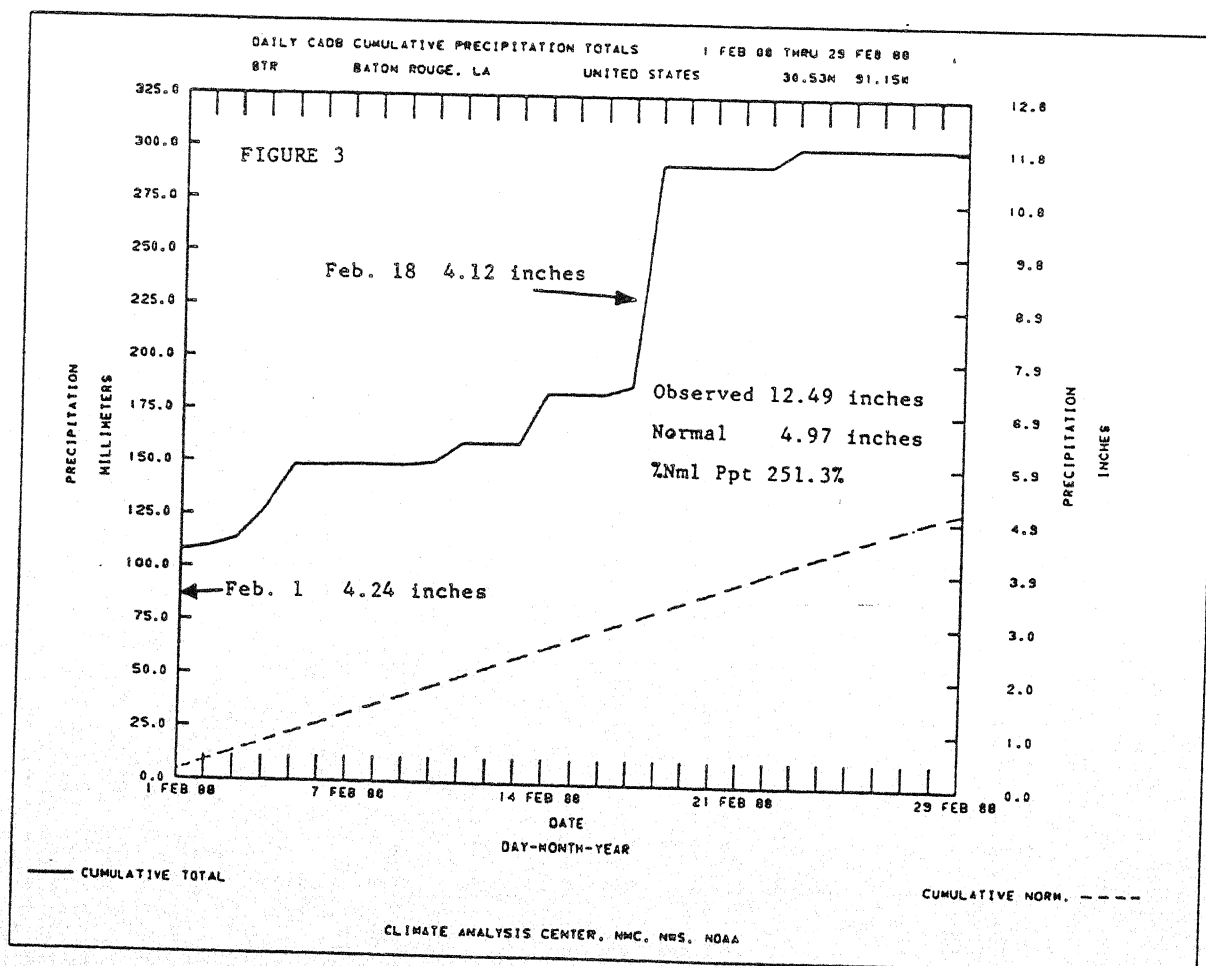
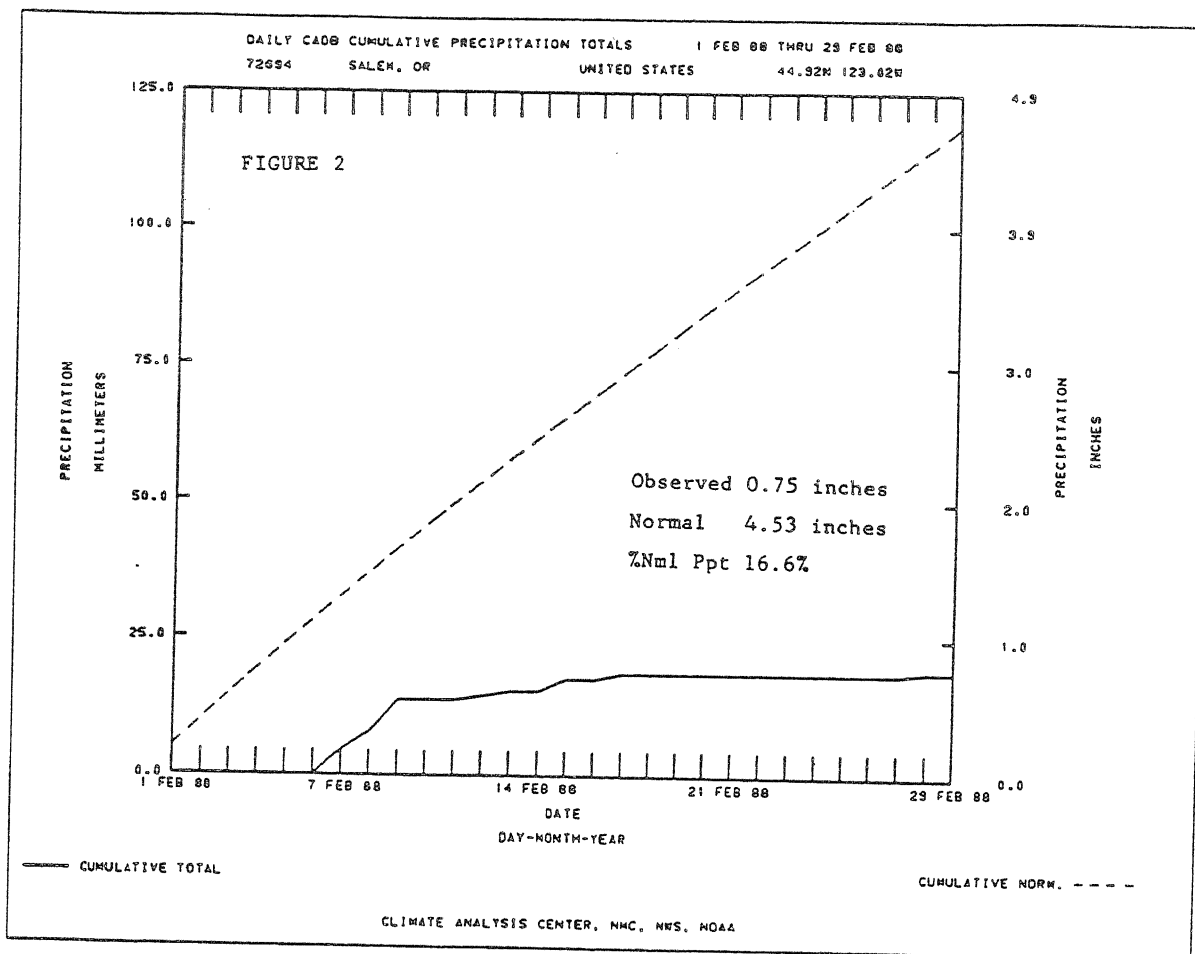
TABLE 4. RECORD FEBRUARY TOTAL PRECIPITATION.

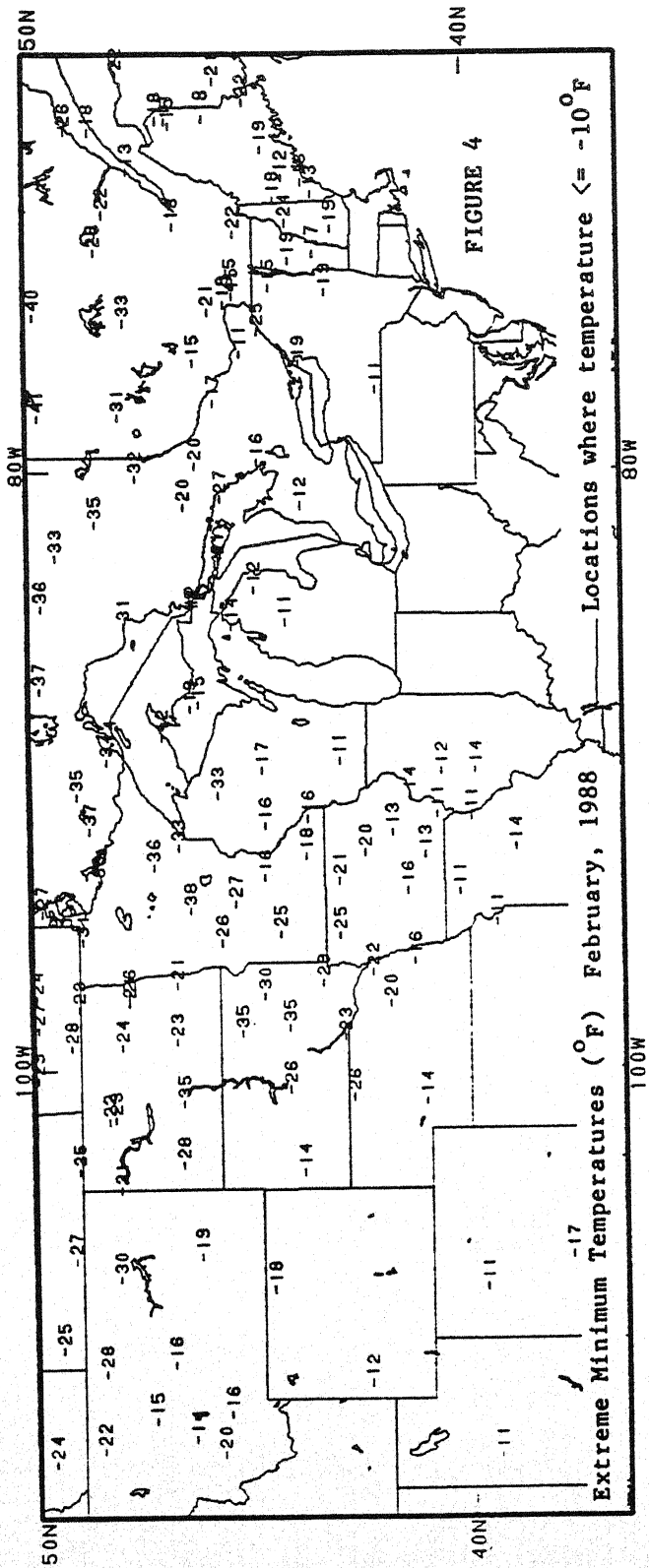
<u>Station</u>	<u>Total</u> <u>(In.)</u>	<u>Normal</u> <u>(In.)</u>	<u>Pct of</u> <u>Normal</u>	<u>Record</u> <u>Type</u>
Lewiston, ID	0.17	0.91	18.7	LOWEST
Duluth, MN	0.13	0.89	14.6	LOWEST
International Falls, MN	0.14	0.67	20.9	LOWEST
Medford, OR	0.20	2.10	9.5	LOWEST
Salem, OR	0.75	4.53	16.6	LOWEST
Victoria, TX	0.23	2.24	10.3	LOWEST
Yakima, WA	T	0.73	0	LOWEST
Burns, OR	0.15	1.13	13.3	LOWEST
Salt Lake City, UT	0.13	1.31	9.9	LOWEST

TABLE 5. RECORD FEBRUARY EXTREME TEMPERATURES.

<u>Station</u>	<u>Extreme</u> <u>(Deg. F)</u>	<u>Record</u> <u>Type</u>
Fresno, CA	80	HIGHEST
Sacramento, CA	76	HIGHEST
West Palm Beach, FL	90	HIGHEST
Glasgow, MT	66	HIGHEST
Kalispell, MT	57	HIGHEST
Miles City, MT	67	HIGHEST
Williston, ND	61	HIGHEST
Portland, OR	71	HIGHEST
Rapid City, SD	75	HIGHEST
Duluth, MN	-33	LOWEST







11

